

## **Succession dynamics of ectomycorrhizal fungi in inoculated *Quercus rubra* seedlings – a field study**

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### **Abstract**

Selected ectomycorrhizal (ECM) fungi may have a beneficial effect on the establishment of nursery grown seedlings and may influence their survival on the first years. By increasing seedling capacity to capture nutrients, ECM fungi often contribute to a successful plant establishment. We investigated the performance of pre-inoculated *Quercus rubra* seedlings on a reforestation site and monitored ECM fungal persistence and succession dynamics between selected ECM fungi and native fungal community. Nursery grown *Q. rubra* seedlings inoculated with a mixture of ECM fungi (*Cenococcum geophilum*, *Hebeloma crustuliniforme*, *H. mesophaeum*, *H. velutipes*, *Paxillus involutus*, *Scleroderma citrinum*) and non-inoculated control oak seedlings, were transplanted to Serra da Cabreira in Northern Portugal. Two years after planting, the subsistence of the inoculated ECM fungi was assessed using ITS-DGGE. Results demonstrated that inoculation with selected ECM fungi at nursery stage promoted the establishment and improved the growth performance of out planted oak seedlings. *C. geophilum* was significantly associated with inoculated saplings but other ECM fungi species were also found. Moreover, ECM fungal communities of inoculated and non-inoculated samples are significantly different. Further monitoring is required to increase knowledge on the persistence of ECM fungal communities and their succession dynamics.

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